DOCUMENT RESUME

ED 076 704 TM 002 713

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TITLE	Teacher Behavior Related to Pupil Creativity and Assessment Strategem.
PUB DATE	73
NOTE	14p.; Paper presented at annual meeting of American Educational Research Association (New Orleans, Louisiana, February 25-March 1, 1973)
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Classroom Techniques; *Creative Ability; *Creativity; Grade 5; *Student Attitudes; Student Evaluation; Teacher Attitudes; *Teacher Behavior; Technical Reports

ABSTRACT

In this study, the evaluation of pupil creativity was partitioned into affective and cognitive components while teacher behavior was divided into classroom practices and teacher attitude. Nine hundred and forty-five fifth grade pupils from a small city district were studied for one year. The teacher attitude measure did not relate to creative ability and only unidirectionally to creative attitude. The teacher's classroom practices related to creative ability but not creative attitude. The interrelationships suggest the multidimensional nature of creativity assessment in the classroom setting. (Author)

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TEACHER BEHAVIOR RELATED TO PUPIL CREATIVITY AND ASSESSMENT STRATEGEM

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In this study, the evaluation of pupil creativity was partitioned into affective and cognitive components while teacher behavior was divided into classroom practices and teacher attitude. Nine hundred, forty-five fifth grade pupils from a small city district were studied for one year.

The teacher attitude measure did not relate to creative ability and only unidirectionally to creative attitude. The teacher's classroom practices related to creative ability but not creative attitude.

The interrelationships suggest the multidimensional nature of creativity assessment in the classroom setting.

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PROBLEM

While it has traditionally been a logical assumption that the teacher is the key to the classroom environment in terms of pupil creativity, the research has not clearly supported this assumption.

The principal concern raised at this point is that, while academic subjects can be taught, is it reasonable to include creativity, affective or cognitive, within the educational domain? Hallman (1964) suggested that creativity is a reasonable goal of education because "the process of being creative is the process of developing oneself as a personality; it is the process of unfettering the chains of habit, routine, and repression[p.23]." Creativity can ideally be included as a part of the educational domain. In reference to the development of creativity, Sir Cyril Burt (1965) noted, "Heredity at best can provide only the seed; the seed must be planted in suitable soil, tended, watered, and cultivated before it can mature and blossom[p.15]." The child has a given amount of creative potential but this must be developed to become functional. Lowenfeld (1961) described this, "In the same way we can differentiate between potential and functional intelligence we can distinguish between potential and functional creativity[p.7]." The principal environment designed by a society to develop this potential is the educational system.

Yet, one must wonder whether the specific system is appropriate to creative development. DeBono (1969) described the type of thinking taught by the contemporary American Education as based on the idea that one must not be wrong, only move in a planned direction, and only consider the relevant. He felt that our system tends to build up large, established patterns that do not lead to creativity but, rather, away from it.

Vaughn (1969) took a much more extreme position. In reference to the fact that creativity and creative thinking have been studied at length she said,

> One thing made clear by these random and often unrelated insights is that our traditional programs in education are effective instruments of our authoritarian society and antithetical to the development of creativity, and that they have been effective and efficient in producing quiet, orderly, and courteous children, rather than flexible, sensitive, and courageous individuals[p.230].

> If, indeed, our present need in education is to increase the quality of a student's knowledge, then the process by which a student comes to know becomes as important as the amount of knowledge gained. The emphasis in the educational process should be on the development of a mature, sensitive, and responsible individual[p.231].

She concluded,

> A cognitive style needs to be considered valuable in our society, so that young people can strive for their interpretations of worth and destiny in freedom. Furthermore, it is necessary for young people to maintain an almost "naive" attitude to problems so that pre-established customs and norms do not remain as fixed and unchanging responses to the emerging needs of mankind. The teacher and the school in America best would serve in this development of students' attitudes, sensitivity, and character indirectly by providing an atmosphere of receptive listening, rather than the present insistence on authority. An insistence on authority and the censure of divergent thoughts is believed, by Torrance and others, to be a major cause for the loss recorded in the level of creative ability in our youth[p.232].

The school may be called many things and written into an infinite variety of syllogisms. Yet at the end it all comes down to children and a teacher. It has been pointed out in the 1970 White House Conference that, "There are three main factors that influence creativity and the learning process: Culture, Environment, and Communication[p.12]." Obviously the teacher has small control over the culture from which the child comes. The teacher can and does exert a powerful influence on the environment in which the child spends many of his waking hours through the school year. "Similarly," as the White House Conference

said, "the teacher is the instructional medium--both the medium and the message--the link between the child and the act of learning[p.23]." Given this position as the instructional medium and controller of the environment, does it seem unreasonable to say that the teacher must have a large effect in encouraging or inhibiting a child's learning and creativity?

The teacher is the true catalyst in the classroom. She can offer, or withhold, opportunity, motivation, and reinforcement. She should directly relate to the affective element of the child's creativity. The sum of all the acts of all the teachers looms as a crucial element of causality when one seeks to explain creativity.

The teacher is viewed as the key to the classroom environment in terms of the pupils' creativity. Lansing (1956) found a significant positive relationship of the teacher as a motivator to 5th grade children's creativity. At the same time, he noted that it was not possible for him to separate the effect of the classroom teacher from the classroom climate. He felt that the classroom teacher has a definite, potent influence on the classroom climate. However, it should be noted that his measure of creativity was a rater scale. Bernis and Luft (1970) observed 296 grade 7 pupils and found that highly creative pupils did not have much of an opportunity to use their creative potential in the typical classroom. He showed that the teacher was the controlling factor and that the major questions were: how she perceived the pupils and to whom she geared the instruction.

In their studies of the role of the teacher, Amidon and Flanders (1963) found that the pupil expectations of who and what the teacher is color all aspects of classroom behavior. Further, once established this

classroom climate is fairly constant. They go on to review the findings of their own and other research. Summarized, this review tells us that the teacher more than any other individual, sets the climate of the class. Dominative or authoritarian leadership, as opposed to democratic, is not conducive to learning and it produces dependency upon the teacher. In Miller's (1964) study of 100 grade 7 and 8 pupils, responsive teaching was pitted against highly prescriptive or directive teaching. The pupils under responsive teaching expressed significantly more positive attitudes toward the learning experience while achieving just as well as pupils under directive teaching.

In his study of teacher ratings as predictors of pupil creativity, Holland (1959) concluded that teachers rate on some sort of leadership potential rather than creativity. He further noted that teachers prefer the intelligent to the creative pupil. Piers, Daniels and Quackenbush (1960) used Guilford tests with 7th graders and found that teacher rating did not correlate with test results. Gardner (1963) studied 272 pupils in grades 4, 7 and 12. He calculated a correlation coefficient of 0.024 between pupil scores on the Torrance test of creativity and teacher ratings and concluded that teachers were not effectively rating pupil creativity. Williams (1965) studied six 6th grade teachers' ability to select their most original and imaginative pupils. Only one of the teachers selections approached significance. He interpreted this to mean whatever the classroom teacher rates as originality and imagination, they are not what the Torrance tests measure. Denny, Rusch and Ives (1967) studied four 6th grades and found teacher rankings to be unreliable.

In their study, Bennet, Doppet and Modans (1969) found that the evaluation of creative ability is definitely influenced by the back-

ground and interest area of the rater. Treffinger, Feldhusen and Thomas (1970) studied 38 elementary school teachers and found there were substantial differences among teachers in the ability to rate pupil creativity as measured by the Torrance test. They also found that other cognitive abilities, particularly IQ, influence teacher ratings. They concluded that more extensive training than a definition of trait is needed for effective rating.

Guilford (1962) pointed out that change in teacher attitude would be a big step forward. "The sad fact is that teachers generally do not prefer the more creative students[p.165]." Hallman (1967) reviewed creativity research and found actions to avoid. He felt that creativity can easily be inhibited and that the classroom teacher can sustain it. He suggested that the teacher avoid: pressure to conform, authoritarian attitudes, ridicule, rigidity of personality, formal rewards, emphasis on correctness, overemphasis on success, hostility to divergence and intolerance of play. The marks of the creative classroom are self-initiated learning, nonauthoritarian environment, overlearning, divergent problem-solving, teacher deferment and pupil self-evaluation. He discussed the fact that the pupils must learn to be sensitive and the teacher must be there to assist the pupil in coping.

Torrance (1963) commented that much of the creative behavior of children is not viewed as acceptable behavior. Thus the teacher has to redefine her concepts and values if she wishes to recognize and nurture pupil creativity. He further noted that creative thinking abilities are of little use when the teacher insists that children memorize facts as stated by an authority. He felt that teachers can and should be catalysts for pupil creativity. He listed common blocks to creativity:

(1) early childhood fantasy is killed not nurtured, (2) children are held back from learning by mass curricula, (3) discipline is overvalued to the detriment of spontaneity, (4) teacher status and security are overprotected, (5) peer orientation and success hurt self-exploration, (6) divergency is confused with delinquency and (7) work is too sharply divided from play. Flanders' (1965) conclusion to his extensive study of teaching practices was that high pupil achievement was attained where teacher patterns were flexible, neither fixed as direct nor indirect. Weber (1967), using 180 grade 4 pupils, found that pupil creativity as measured by the Torrance test was benefited by indirect over direct teaching behaviors. Skigaki (1970) studied the effects of teacher attributes on the creative ability of 32 elementary school pupils. In her sample, the teachers were preoccupied with conveying lessons (things) and failed to use divergent methods but relied on fact-stating. Her results indicated that the teacher's actions were not conducive to pupil creativity. Hobson and Feldhusen (1971) conducted a special workshop for 5th and 7th graders which emphasized freedom and playfulness. They showed video tapes of their sessions to 13 teachers. All of the teachers were supportive of the program's major themes. Half of the teachers felt that pupils would learn just as much or more in a free and open classroom. However, only four of the 13 were inclined to try it in their own classroom. The rest felt that it was not applicable or practical.

It was hypothesized in this study that the evaluation of pupil creativity should be dissected into affective and cognitive components. At the same time, teacher behavior should be broken into classroom practices and teacher attitude. The relationships of the teacher to

pupil creativity would thus be approached as possible combinations of the cognitive and the affective rather than as gross measures of total sphere.

Method

The study was conducted in a small city district with predominately lower socioeconomic residents. All of the fifth grade pupils (N = 945) and their teachers were tested in the Fall and again in the Spring. The teachers completed the Kerlinger Education Scale VI (Kerlinger, 1970) to assess their attitudes. The affective element of the pupils was assessed using the Pennsylvania Assessment of Creative Tendency (1971a). The cognitive element was assessed using the Fanani Hidden Figures Test (Fanani, 1964; Rookey, 1971b). The data on the teacher classroom practices were collected using Teacher Questionnaire from the Commonwealth of Pennsylvania Educational Quality Assessment Project.

RESULTS

To assess the relationship of teacher scores to pupil scores, Pearson Product Moment Correlation Coefficients were computed using the class mean scores. The results are shown in Table . The ESB scores, a measure of teacher attitude toward the Closed-Traditional classroom, did not relate significantly to either the Fanani scores or the Pennsylvania Assessment of Creative Tendency scores. The ESA scores, a measure of teacher attitude toward the Open-Democratic classroom, did not relate significantly to the Fanani scores.

Table

Pearson Product Moment Correlations of Teacher to Pupil Test Scores

	ESA		ESB	
Correlates	Pretest	Posttest	Pretest	Posttest
Fanani Pretest	-0.1773	-0.0786	-0.1448	-0.1250
Fanani Posttest	0.0430	-0.0580	0.0560	0.0165
PACT Pretest	0.1489	0.0505	0.1752	-0.0403
PACT Posttest	*0.3601	0.0886	0.3287	0.1387

* .05 r 30 $\geq$ 0.349

** .01 r 30 $\geq$ 0.449

The ESA pretest scores did relate significantly beyond the .05 level with the posttest of the Pennsylvania Assessment of Creative Tendency. Thus, there is a positive relationship between the teachers' atti-

tude toward the Open-Democratic classroom in the fall and the pupils' creative attitude in the spring.

The correlations were computed by experimental and control groups as well as by total group. To assess the difference in relationships by groups, a z-test was run between the correlations. There was one relationship that was significantly different between the experimental and control groups as shown in Table . The relationship of the ESA posttest to PACT posttest was significantly different beyond the .05 level. In the control group, a high teacher posttest was associated with a high pupil posttest which is supportive of the theory underlying this study. In the experimental group, there was a negative relationship which is totally contradictory to the theory.

Table

z-Test Between Correlations of Teacher to Pupil Test Scores

Correlates	Total Group r =	Experimental Group r =	Control Group r =	z =	p =
ESA Posttest X PACT Posttest	0.0885	-0.3172	0.4944	2.26	.05

To assess the relationship between the teachers' reported classroom practices and the pupils' scores, Pearson Product Moment Correlation Coefficients were computed using the class mean scores. These coefficients are reported in Table

Table

Pearson Product Moment Correlations
of Teacher Classrooom Practices to Pupil Scores

	Pupils assist in lesson planning	Pupils participate in classroom teaching	Pupils work in small groups	Role playing	Use games to aid learning	Pupils evaluate classroom climate	Involve pupils in community projects	Utilize local citizens as resource personnel	Pupils as helpers or tutors of other pupils	Pupils assist in developing class rules
Fanani Pretest	0.0987	0.1541	0.2542	0.1923	0.1148	0.1574	0.0214	0.2659	-0.0522	-0.0970
Fanani Posttest	0.1986	0.2298	*0.3686	0.3018	0.3392	*0.3761	0.1564	0.3248	0.2858	0.2327
PACT Pretest	-0.0657	-0.0782	-0.0889	-0.1209	-0.1746	0.1801	0.1752	0.2037	-0.0442	0.0996
PACT Posttest	-0.1418	-0.0296	-0.0925	-0.0328	-0.1287	0.1301	-0.0704	-0.1531	-0.1431	0.0119

* .05 $r_{30} \geq 0.349$

** .01 $r_{30} \geq 0.449$

There were two significant correlations of classroom practices to pupil scores. Both significant correlations were with the Fanani test. There was a significant correlation between the Fanani posttest and the use of small groups. The Fanani posttest also related significantly with having pupils evaluate the classroom climate. These correlations indicate that high creative ability scores at the end of the school year are associated with the practices of using small groups and having pupils evaluate the classroom climate.

The correlations of teachers' reported classroom practices and pupils' scores were also computed by experimental and control groups. There were no significantly different correlations between the two groups.

DISCUSSION

The teacher measure of traditional attitude did not relate to either the Pennsylvania Assessment of Creative Tendency of the Fanani Hidden Figures Test. The teacher measure of open-democratic attitude related to the Pennsylvania Assessment of Creative Tendency but not the Fanani Hidden Figures Test. This finding raises serious doubts as to the total effect of the teacher. The teacher attitude did not relate at all to creative ability and only partly to creative attitude. This would seem to contradict the theory that the teacher is the prime mover in the classroom (Combs (1962), Anderson (1959) and Lansing (1956)). The moderate position that the teacher can be a motivator (Bennis and Luft (1970) and Mars (1969)) seems more tenable. Certain facets of the teacher can effect certain facets of pupil behavior.

It seems to be a notable fact that the greater the teacher attitude toward the Open-Democratic classroom the higher the pupil creative attitude in the spring. It would seem that the open-democratic attitude is related to pupil creativity which supports the position of Christie (1970), Hutchinson (1967), Flanders (1965), Hallman (1965), Amidon and Flanders (1963), Combs (1962), and Anderson (1959, 1961). The fact that it was the teachers' pretest that correlated significantly also lends support to Amidon and Flanders' (1963) statement that the pupils' perception of the teacher is formed early in the year and is enduring.

The teachers' classroom practices related to the pupils creative ability. This supports the position that the open-innovative classroom is positively related to creative ability. This position is held by Waller (1969), Hallman (1967), Torrance (1965), and Rogers (1959). The

fact that the classroom practices related to creative ability while teacher attitude related to creative attitude raises a more general point.

There are several studies which state that the teacher cannot rate creative ability (Denny, Rusch and Ives (1967), Williams (1965), Gardner (1963), Piers, Daniels and Quacqenbush (1960), and Holland (1959)). The results of the present study suggest that the task of rating creativity may be illogical. A rating is based upon an affective perception while most of the criterion tasks are ability measures. The task should be to rate pupil attitude not pupil ability.

There is another consideration raised by the relationship of teacher attitude to creative attitude, and classroom practices to creative ability. If an educational program is to successfully deal with pupil creativity, then it must deal successfully with both the attitudes and the practices of the teacher.